

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1. (currently amended) A method for evaluating a feature, comprising:
receiving an image of the feature;
determining respective coordinates of a plurality of points on an edge of the feature in the image;
fitting a figure having a non-circular and non-linear shape to the plurality of points;
thereafter determining respective distances between the plurality of points and the figure having the non-circular and non-linear shape; and
computing a roughness parameter for the feature using the ~~in response to the~~ respective distances.
2. (currently amended) The method according to claim 1, wherein computing the roughness parameter comprises computing a contact edge roughness (CER) ~~in response to~~ based on a sum of the squares of the respective distances and a number of degrees of freedom of the figure.
3. (currently amended) The method according to claim 1, wherein computing the roughness parameter comprises computing a correlation length (CL) ~~in response to~~ based on a sum of the squares of the respective distances, a number of degrees of freedom of the figure, and an average of squares of differences of the respective distances.
4. (currently amended) The method according to claim 1, wherein computing the roughness parameter comprises performing a Fourier analysis of the respective distances, and generating a power spectrum ~~in response to~~ based on the analysis.
5. (original) The method according to claim 4, wherein generating the power spectrum comprises filtering results of the Fourier analysis.

6. (currently amended) The method according to claim 5, wherein filtering the results comprises selecting a filter ~~in response to~~ based on a process used to form the feature.

7. (currently amended) The method according to claim 1, wherein the feature is formed on a substrate, and wherein the feature and the substrate are ~~comprised~~ in a semiconductor wafer.

8. (original) The method according to claim 7, wherein the feature comprises a contact hole.

9. (original) The method according to claim 1, wherein receiving the image comprises generating the image with a scanning electron microscope.

10. (original) The method according to claim 1, wherein the figure comprises an ellipse.

11. (original) The method according to claim 1, wherein the figure has a known shape.

12. (original) The method according to claim 1, wherein fitting the figure comprises determining a nominal shape of the figure by averaging at least some of the plurality of the points.

13. (currently amended) The method according to claim 1, wherein the figure ~~is selected from a closed figure and an open figure~~ is a closed figure.

14. (currently amended) The method according to claim 1, wherein the distance is ~~chosen from~~ a perpendicular distance ~~[[and]]~~ or a radial distance.

15. (currently amended) The method according to claim 1, wherein the feature is ~~chosen from~~ a reticle, a part of the reticle, ~~[[and]]~~ or a cast of a structure.

16. (currently amended) A method for evaluating a feature, comprising:

receiving an image of the feature;
determining respective coordinates of a first plurality of points on a first edge of the feature in the image;
fitting a first figure having a first non-circular and non-linear shape to the first plurality of points;
determining respective coordinates of a second plurality of points on a second edge of the feature in the image;
fitting a second figure having a second non-circular and non-linear shape to the second plurality of points;
thereafter determining respective distances between the first plurality of points and the first figure having the first non-circular and non-linear shape and respective distances between the second plurality of points and the second figure having the second non-circular and non-linear shape ~~distances between the first and the second figures;~~ and
computing a roughness parameter for the feature in response to the respective distances.

17. (currently amended) Apparatus for evaluating a feature, comprising:
an imaging unit which is adapted to generate an image including the feature; and
a processor which is adapted to:

determine respective coordinates of a plurality of points on an edge of the feature in the image,
fit a figure having a non-circular and non-linear shape to the plurality of points,
thereafter determine respective distances between the plurality of points and the figure having the non-circular and non-linear shape, and
compute a roughness parameter for the feature in response to the respective distances.

18. (currently amended) The apparatus according to claim 17, wherein computing the roughness parameter comprises computing a contact edge roughness (CER) ~~in response to~~ based on a sum of the squares of the respective distances and a number of degrees of freedom of the figure.

19. (currently amended) The apparatus according to claim 17, wherein computing the roughness parameter comprises computing a correlation length (CL) ~~in response to~~ based on a sum of the squares of the respective distances, a number of degrees of freedom of the figure, and an average of squares of differences of the respective distances.

20. (currently amended) The apparatus according to claim 17, wherein computing the roughness parameter comprises performing a Fourier analysis of the respective distances, and wherein the processor is adapted to generate a power spectrum ~~in response to~~ based on the analysis.

21. (original) The apparatus according to claim 20, wherein generating the power spectrum comprises filtering results of the Fourier analysis.

22. (currently amended) The apparatus according to claim 21, wherein filtering the results comprises selecting a filter ~~in response to~~ based on a process used to form the feature.

23. (currently amended) The apparatus according to claim 17, wherein the feature is formed on a substrate, and wherein the substrate and the feature are ~~comprised~~ in a semiconductor wafer.

24. (original) The apparatus according to claim 23, wherein the feature comprises a contact hole.

25. (original) The apparatus according to claim 17, wherein the imaging unit and the processor are comprised in a scanning electron microscope.

26. (original) The apparatus according to claim 17, wherein the figure comprises an ellipse.

27. (original) The apparatus according to claim 17, wherein the figure has a known shape.

28. (original) The apparatus according to claim 17, wherein the processor is adapted to determine a nominal shape of the figure by averaging at least some of the plurality of the points.

29. (currently amended) The apparatus according to claim 17, wherein the figure is ~~selected from a closed figure and an open figure.~~

30. (currently amended) The apparatus according to claim 17, wherein the distance is ~~chosen from a perpendicular distance~~ [[and]] or a radial distance.

31. (currently amended) The apparatus according to claim 17, wherein the feature is ~~chosen from a reticle, a part of the reticle,~~ [[and]] or a cast of a structure.

32. (Currently amended) Apparatus for evaluating a feature, comprising:
an imaging unit which is adapted to generate an image including the feature; and
a processor which is adapted to:
 determine respective coordinates of a first plurality of points on a first
 edge of the feature in the image,
 fit a first figure having a first non-circular and non-linear shape to the first
 plurality of points,
 determine respective coordinates of a second plurality of points on a
 second edge of the feature in the image,
 fit a second figure having a second non-circular and non-linear shape to the
 second plurality of points,
 thereafter determine distances between the first plurality of points and the first
 figure having the first non-circular and non-linear shape and respective distances between the
 second plurality of points and the second figure having the second non-circular and non-linear
 shape distances between the first and the second figures, and
 compute a roughness parameter for the feature in response to the
 respective distances.

33. (currently amended) A method for evaluating a feature, comprising:

receiving an image of the feature;
determining respective coordinates of a plurality of points on an edge of the feature in the image;
fitting a figure having a non-circular and non-linear shape to the plurality of points;
thereafter determining respective distances between the plurality of points and the figure having the non-circular and non-linear shape; and
computing a correlation length ~~in response to~~ based on a sum of the squares of the respective distances, a number of degrees of freedom of the figure, and an average of squares of differences of the respective distances.

34. (currently amended) A method for evaluating a feature, comprising:
receiving an image of the feature;
determining respective coordinates of a plurality of points on an edge of the feature in the image;
fitting a figure having a non-circular and non-linear shape to the plurality of points;
thereafter determining respective distances between the plurality of points and the figure having the non-circular and non-linear shape;
performing a Fourier analysis of the respective distances; and
filtering results of the Fourier analysis based on ~~in response to~~ a process used to form the feature.

35. (Currently amended) A method for evaluating a feature, comprising:
receiving an image of the feature;
determining respective coordinates of a plurality of points on an edge of the feature in the image;
fitting a figure having a non-circular and non-linear shape to the plurality of points;
thereafter determining respective distances between the plurality of points and the figure having the non-circular and non-linear shape;
performing a Fourier analysis of the respective distances; and
filtering results of the Fourier analysis ~~in response to~~ based on a shape of the feature.

36. (currently amended) Apparatus for evaluating a feature, comprising:

an imaging unit which is adapted to generate an image including the feature; and
a processor which is adapted to:

determine respective coordinates of a plurality of points on an edge of the feature
in the image,

fit a figure having a non-circular and non-linear shape to the plurality of points,
thereafter determine respective distances between the plurality of points and the
figure having the non-circular and non-linear shape, and

compute a correlation length ~~in response to~~ based on a sum of the squares of the
respective distances, a number of degrees of freedom of the figure, and an average of
squares of differences of the respective distances.

37. (currently amended) Apparatus for evaluating a feature, comprising:

an imaging unit which is adapted to generate an image including the feature; and
a processor which is adapted to:

determine respective coordinates of a plurality of points on an edge of the feature
in the image,

fit a figure having a non-circular and non-linear shape to the plurality of points,
thereafter determine respective distances between the plurality of points and the
figure having the non-circular and non-linear shape,

perform a Fourier analysis of the respective distances, and

filter results of the Fourier analysis in response to a process used to form the
feature.

38. (currently amended) Apparatus for evaluating a feature, comprising:

an imaging unit which is adapted to generate an image including the feature; and
a processor which is adapted to:

determine respective coordinates of a plurality of points on an edge of the feature
in the image,

fit a figure having a non-circular and non-linear shape to the plurality of points,
thereafter determine respective distances between the plurality of points and the
figure having the non-circular and non-linear shape,

perform a Fourier analysis of the respective distances, and

filter results of the Fourier analysis in response to a shape of the feature.